

Deep Soil Testing Could Save You Money in 2001

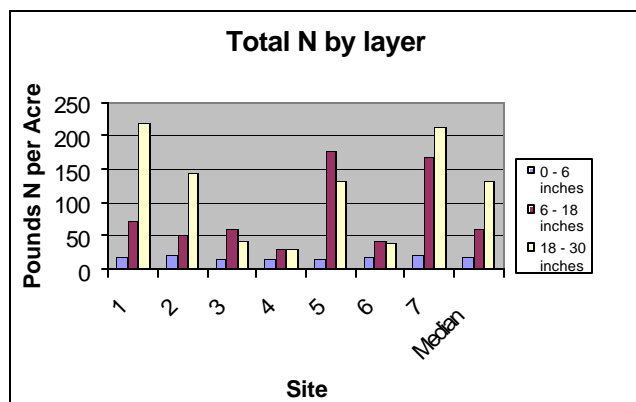
Recent soil tests in the Brazos Bottom have shown that there may be an accumulation of nutrients below the normal sampling depth of 6 inches. Even though, these nutrients are below 6 inches they are still within the root zone of most crops, see Table 1.

Table 1 – Crop Rooting Depths

Crop	Typical Rooting Depth
Corn	2 – 3 ft.
Cotton	2 – 4 ft.
Soybean	2 – 3 ft.
Grain Sorghum	2 – 3 ft.

A set of 28 samples from 7 sites in 1 field in the Brazos Bottom showed a substantial amount of available nutrients below the normal soil sampling depth. In most cases there was enough nitrogen (Figure 1), phosphorus and potassium to produce the next crop. In the case of phosphorus, there was enough available to produce 2 or 3 years of crops.

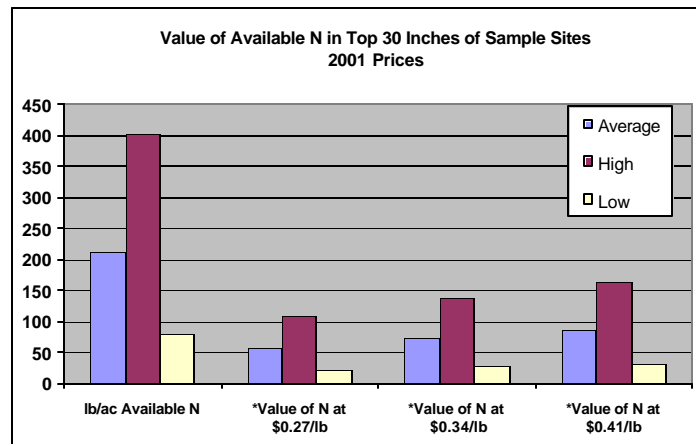
Figure 1



It is generally assumed that most of the nitrogen fertilizer applied annually is used by the crop with a small remainder lost through volatilization, biological activity or leaching through the root zone. However, with heavy textured soils this may not be the case, as shown in the example above. The excess nitrogen from

previous years has leached a few inches, but it has accumulated in the root zone and is available for crop uptake. This is especially important to note this year when nitrogen fertilizer prices are going up. The value of the nitrogen in the top 30 inches of this sample area is shown in Figure 2.

Figure 2



*January 2001 prices 46-0-0, 34-0-0, Bryan, TX. **Projected price summer 2001.

The importance of knowing if your fields are like the one sampled is clearly of economic as well as environmental importance. The soil test nitrogen recommendation for the field sampled in this demonstration, based on a 0 – 6 inch sampling depth, would have been 105 lb/ac nitrogen to produce 2.5 bale irrigated cotton. The deep soil testing showed that there is a large amount of available nitrogen within the typical root zone of cotton, and therefore the actual amount of nitrogen fertilizer needed may only be 20 -30 lbs/ac, if the low total above is used to adjust the rate. The cost for additional soil tests is \$10.00 each if run by the Texas A&M Soil Lab. This could be the best money spent on fertilizer this year.

The environmental benefit is that potential over application of nitrogen will be averted, due to adjustments in the nitrogen rate applied based on deep testing results. A win-win situation for all concerned.

This deep soil testing demonstration was accomplished with the cooperation of the USDA Natural Resources Conservation Service, the Big 8 RC&D, Buffalo Ranch, Sanderson Poultry, Inc., and the Texas A&M Soil Testing Laboratory.

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Big 8 RC&D

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